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## ABSTRACT

Critical thinking is often defined as that which a particular instrument measures. The most prominent tests are the Watson-Glaser Critical Thinking Appraisal, the Ennis-Weir Critical Thinking Essay Test, and the Cornell Critical Thinking Tests. Watson and Glaser's (1980) view of critical thinking is "a composite of attitudes, knowledge, and skills." Ennis (1984) uses the terms "critical thinking," "informal logic," and "reasoning" roughly interchangeably, defining critical thinking as "reflective and reasonable thinking that is focused on deciding what to believe or do." Based on this definition, Ennis's model posits 13 dispositions and 12 abilities that together make up critical thinking. From the field of adult education, a simplified concept of critical thinking emerges. Brookfield's (1987) definition of critical thinking is a productive and positive emotive and rational process that is triggered by both positive and negative life events. The following definition of critical thinking was used for the learning strategies instrument developed by the Kellogg Center for Adult Learning Research, Montana State University: "a parallel process by which individuals analyze given information in a contextually specific situation and create new ideas, concepts, or constructs based on their analysis." According to this model, there are four general strategies necessary for critical thinking, two of which are analytical (recognizing and testing assumptions, and assessing contextual parameters) and two of which are creative (generating and testing alternatives, and conditional acceptance). (105 references) (KC)

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Critical thinking in Adulthood

a paper submitted  
to  
The Kellogg Center for Adult Learning Research  
Montana State University  
by  
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### A concept of critical thinking

Within the past twenty years, critical thinking has become a much discussed concept both in the field of education and the field of psychology. Much of the research, writing, and speculation during these past two decades has centered on three specific areas-- defining critical thinking, measuring critical thinking, and teaching others how to engage in critical thinking. Each of the three areas is ripe with disagreement and controversy, and a detailed analysis is beyond the scope of this paper.

There are many variations on the definition of critical thinking. Some consider the concept as a product, an end result-- critical thought; others champion the process--critical thinking. Often the concept is limited to logic, reasoning skills, and problem solving. Yet others maintain that the essence of critical thinking lies in reflective thought or the creation of new ideas. Recently, this aspect has been labeled creative thinking and conceived as different than critical thinking.

Practically, critical thinking is often defined as that which a particular instrument measures. The most prominent tests are the Watson-Glaser Critical Thinking Appraisal, the Ennis-Weir Critical Thinking Essay Test, and the Cornell Critical Thinking Tests. Watson and Glaser (1980) view critical thinking

as a composite of attitudes, knowledge, and skills. This composite includes: (1) attitudes of inquiry that involve an ability to recognize the existence of problems and an

acceptance of the general need for evidence in support of what is asserted to be true; (2) knowledge of the nature of valid inferences, abstractions, and generalizations in which the weight or accuracy of different kinds of evidence are logically determined; and (3) skills employing and applying the above attitudes and knowledge. (p. 1)

Ennis (1984) uses "the terms "critical thinking" and "informal logic" and "reasoning" roughly interchangeably" (p.3)  
In 1985, Ennis offered the following as the definition of critical thinking

Although there are narrower concepts of critical thinking in some people's minds, I think that the one that is most generally employed is expressed in this definition: Critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do. Note that there are creative activities covered by this definition, including formulating hypotheses, questions, alternatives, and plans for experiments. Note also that, so defined, critical thinking is a practical activity because deciding what to believe or do is a practical activity. (p. 45)

Based on this definition, Ennis developed a model that posited thirteen dispositions and twelve abilities that together make up critical thinking. While Ennis has stated them somewhat differently in different articles and others have reworded them (Sternberg and Baron, 1985, p.42), in 1985 Ennis reported the following dispositions

1. Seek a clear statement of the thesis or question
2. Seek reasons
3. Try to be well-informed
4. Use credible sources and mention them
5. Take into account the whole situation
6. Try to remain relevant to the main point
7. Keep in mind the original and/or basic concern
8. Look for alternatives
9. Be openminded
10. Take a position (and change a position) when the evidence and reasons are sufficient to do so
11. Seek as much precision as the subject permits
12. Deal in an orderly manner with the parts of a complex whole

13. Be sensitive to the feelings, level of knowledge, and degree of sophistication of others (p. 46)

In a lengthy outline, Ennis followed his thirteen dispositions with twelve abilities grouped into five categories--elementary classification, basic support, inference, advanced clarification, and strategies and tactics. Elementary classification consists of focusing on a question, analyzing arguments, and asking and answering questions of clarification and challenge. Judging credibility, and observing and judging observations make up Ennis' basic support ability. Inference is made up of the following abilities: deducing and judging deductions, inducing and judging inductions, and making and judging value judgments. Defining terms and judging those definitions along with identifying assumptions are what Ennis calls advanced clarification. Finally deciding on an action and interacting with others comprise his strategy and tactics ability. The reader is referred to Ennis (1985 p. 46) for a detailed description yet in Ennis words one that is "only an overall content outline."

From our own field of adult education, we can find a simplified concept of what critical thinking is and what skills are required for one to engage in critical thinking. Brookfield (1987) defines critical thinking as a productive and positive emotive and rational process that occurs in contextually specific events triggered by both positive and negative life events. Based on this concept, Brookfield hypothesizes only four components of the process of critical thinking-- identifying and challenging assumptions, challenging the importance of the context, imagining

and exploring alternatives, and reflective skepticism. For Brookfield reflective skepticism means, " we become skeptical of claims to universal truth or to ultimate explanations....People who are reflectively skeptical do not take things as read." (1987, p.9).

While Brookfield's concept of critical thinking might be labeled as simplistic or too general, Ennis' might be tagged as very complex and detailed. The literature on critical thinking seems to support a concept that critical thinking involves two areas--analytic thought or the judging of information and creative thought or the birthing of new ideas based on the combination of previous information. Further, it seems as if the process of critical thinking requires both attitudes or dispositions that allow an individual to engage in such a process as well as strategies or skills that actually engage a person in the process. From a measurement perspective, some questions arise. Can we in an instrument such as we are proposing really deal with such an in depth analysis as Ennis' model proposes? Or in an instrument which views critical thinking as one of many learning strategies, can Brookfield's more general concept provide enough information? Finally, how do we measure both the attitudes and the strategies of critical thinking? Can a paper and pencil, multiple choice test really assess critical thinking? If so, should we accept that others have already developed such instruments and simply seek permission to use/modify their work to fit our goals? Or would it be better to create a new format by

which to assess the process of critical thinking?

Operational definition of critical thinking

For the learning strategies instrument to be developed by the Kellogg Center for Adult Learning Research, Montana State University, critical thinking is defined as:

**A parallel process by which individuals analyze given information in a contextually specific situation and create new ideas, concepts, or constructs based on their analysis.** There are four general strategies necessary for critical thinking.

The analytical aspects of creative thinking

1) **Recognizing and testing assumptions** that are either implicit to the situation or explicitly stated. The critical thinker does not impose his/her own assumptions but can identify those assumptions that are organizing the information presented and then can test those assumptions for validity in the specific context of that situation.

2) **Assessing contextual parameters.** The critical thinker can evaluate both the specificity of a situation as well as the universality of the situation. He/she recognizes both the limits of a certain situation as well as any generalizability always cognizant of cultural implications.

The creative aspects of critical thinking

3) **Generating and testing alternatives** allows the critical thinker to hypothesize and dream while at the same time grounding

alternatives in the realities of the given situation--cultural and individual.

4) **Conditional acceptance** or as Brookfield labeled reflective skepticism allows the critical thinker to avoid universal truth and unquestioned answers. Rather than conceptualizing in black and white, the critical thinker sees the shades of grey. The critical thinker reasons in conditionals, if...then...statements rather than thou shalt commandments.

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